Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): A system for controlling ventricular rate in a heart of a patient undergoing atrial fibrillation (AF), comprising:

a cardiac delivery system; and

a source of material comprising fibroblast cells ~~and/or a biopolymer~~ coupled to the cardiac delivery system,

wherein the delivery system is adapted to deliver a volume of the material from the source and directly into the atrioventricular (AV) node of the heart or into the normal conduction pathways leading into the AV node of the heart ~~or around the patient's AV node~~, and wherein the ~~volume of~~ fibroblast cells ~~and/or a biopolymer when~~ are delivered in a volume and pattern that causes a delay of atrial impulses conducted through the patient's AV node to the ventricles in order to reduce the ventricular rate of the heart ~~into or around the AV node causes conduction delay and/or modification of conduction pathways~~.

Claim 2 (Currently Amended): The system of claim 1, wherein the cardiac delivery system further comprises at least one needle cooperating and adapted to fluidly couple the at least one needle to the source of fibroblast cells ~~and/or a biopolymer~~ to deliver the material ~~to or around the AV node~~ via the at least one needle.

Claims 3-4 (Canceled)

Claim 5 (Original): The system of claim 1, wherein the cardiac delivery system comprises an intracardiac delivery system.

Claim 6 (Original): The system of claim 1, wherein the cardiac delivery system comprises an endocardial delivery system.

Claim 7 (Currently Amended): The system of claim 1, where the cardiac delivery system comprises a transvascular delivery system that is adapted to deliver the volume of material ~~into or around the AV node~~ through a vessel wall of a vessel associated with the cardiac tissue structure.

Claim 8 (Canceled)

Claim 9 (Currently Amended): The system of claim 1, wherein the cardiac delivery system comprises at least one needle that is adapted to inject the material into or around the region of tissue at ~~or around~~ the AV node or at the normal conduction pathways leading into the AV node.

Claim 10 (Canceled)

Claim 11 (Original): The system of claim 1 which is useful for treating atrial fibrillation.

Claim 12 (Original): The system of claim 1 which is useful for preventing ventricular tachyarrhythmia.

Claim 13 (Currently Amended): A method for controlling the ventricular rate in a heart of a patient, which comprises administering an effective amount of a material comprising fibroblast cells directly into the AV node of the heart or into the normal conduction pathways leading into the AV node of the heart ~~and/or a biopolymer to and/or around the patient's AV nodal area~~.

Claim 14 (Original): The method of claim 13 which causes conduction delay at the AV node.

Claim 15 (Original): The method of claim 13 which reduces the incidence of atrial fibrillation.

Claim 16 (Currently Amended): The method of claim 13 which prevents ventricular tachyarrhythmia ~~tachyarrhythmias~~.

Claim 17 (Canceled)

Claim 18 (Currently Amended): The method of claim 13, wherein the material comprising fibroblast cells ~~and/or a biopolymer~~ is delivered ~~to or around the AV node~~ at least in part transeptally across the atrial septum with a transeptal delivery sheath.

Claim 19 (Original): The method of claim 13, wherein the fibroblast cells are autologous.

Claim 20 (Original): The method of claim 13, wherein the material comprises one or more biopolymers.

Claim 21 (Original): The method of claim 20, wherein the biopolymers are selected from the group consisting of fibrin, collagen, alginate, and precursors and/or derivatives thereof, and combinations of two or more thereof.

Claim 22 (Original): The method of claim 20, wherein the biopolymer recruits fibroblast cells.

Claim 23 (Original): The method of claim 13, wherein the fibroblast cells and/or a biopolymer are administered in at least one injection.

Claim 24 (Original): The method of claim 23, wherein there are from about one to about 100 injections.

Claim 25 (Original): The method of claim 24, wherein there are from about 10 to about 75 injections.

Claim 26 (Original): The method of claim 25, wherein there are from about 20 to about 60 injections.

Claim 27 (Original): The method of claim 23 wherein from about one million to about one billion fibroblast cells are administered in each injection.

Claim 28 (Original): The method of claim 23 wherein from about 0.01 ml to about 5 ml of biopolymer are administered in each injection.

Claim 29 (Original): The method of claim 28 wherein from about 0.1 to about 2 ml of biopolymer are administered in each injection.

Claim 30 (Original): The method of claim 23 wherein there are two or more injections and each injection comprises fibroblast cells, a biopolymer, or fibroblast cells in combination with a biopolymer.

Claim 31 (New): The system of claim 1, wherein the pattern comprises at least one of continuous and discontinuous lines.

Claim 32 (New): The system of claim 1, wherein the normal conduction pathways leading into the AV node comprise conduction pathways leading from the sinoatrial (SA) node into the AV node.